DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 13.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-005409
Date Inspected: 13-Feb-2009

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Oregon Iron Works Clackamas, Or.

OSM Arrival Time: 630
OSM Departure Time: 1700
Location: Clackamas, Oregon

CWI Name:	See below		**CWI Present:**	☑ Yes	☐ No
Inspected CWI report:	☐ Yes	☑ No ☐ N/A	**Rod Oven in Use:**	☐ Yes	☐ No ☑ N/A
Electrode to specification:	☑ Yes	☐ No ☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No ☐ N/A
Qualified Welders:	☑ Yes	☐ No ☐ N/A	**Verified Joint Fit-up:**	☐ Yes	☑ No ☐ N/A
Approved Drawings:	☑ Yes	☐ No ☐ N/A	**Approved WPS:**	☑ Yes	☐ No ☐ N/A
			Delayed / Cancelled:	☐ Yes	☑ No ☐ N/A

Bridge No: 34-0006
Component: Hinge K Pipe Beams

Summary of Items Observed:

On this date, Caltrans Quality Assurance Inspector (QA) Sherri Brannon is present at the Oregon Iron Works, Inc. (OIW) jobsite in Clackamas, Oregon for the purpose of observing fabrication of the Hinge K Pipe Beams.

OIW Fabrication Shop-Bay 1 (sub-assembly):
QA Inspector Brannon randomly observed OIW personnel prepping internal ring stiffeners round plate MK# a125 – 40mm x 1720mm x 1720mm and round plate MK#b125- 50mm x 1720mm x 1720mm (HPS 485 W) for fit-up and welding. Internal ring stiffeners will be welded inside the hinge k pipe beam fuse half sections. Ring stiffeners plates are being beveled to 55 degrees on both sides with a 4mm land. See OIW fabrication drawing 2244-123 sheet 1 of 2 for bevel profile and weld detail.

OIW Fabrication Shop-Bay 2 (Post Heat Straightening):
QA Inspector Brannon randomly observed OIW qualified welder Mr. Rick Hinkle ID#H49 on hinge k pipe beam fuse section A124-10 (HPS 485 W) into acceptable tolerances. Mr. Hinkle was observed using a temperature indicator of 1050°F to insure that the heat straightening process did not exceed 1100 °F. Cause for heat straightening due to the rolling process and welding distortion. Heat straightening is performed by flame straightening using a portable torch mounted on a traveler. Heat straightening randomly observed by QA Inspector Brannon appeared to comply with OIW's Upset Shortening Procedure (Heat Straightening) Procedure SP-006 revision 2. QA Inspector Brannon observed OIW QC CWI Inspector's Mr. Mike Gregson, Mr. Rob Walters, Mr. Pete Hale and Mr. Jose Salazar randomly monitoring the heat straightening process. QA observed 12 heat passes on this date.

OIW Fabrication Shop-Bay 2 (sub-assembly):
QA Inspector Brannon randomly observed OIW qualified welder Mr. Tim O'Brien ID#O6 groove welding a hinge k pipe beam fuse section A124-11 (HPS 485 W). The complete joint penetration (CJP) weld is identified as weld joint #W3-01K. Mr. O'Brien was observed welding in the 1G (flat) position utilizing submerged arc welding (SAW) process with a 2.4mm diameter electrode, filler metal brand Lincoln Electric LA85 class F9A4-Eni5-G-H2. QA Inspector Brannon observed the OIW QC CWI Inspector's Mr. Mike Gregson, Mr. Rob Walters, Mr. Pete Hale and Mr. Jose Salazar verifying that the pre-heat and welding parameters were in accordance with the Welding Procedure Specification (WPS). Welding parameters measured by QA are as follows: 580 amps and 32.9 volts appear to be in conformance with welding procedure specification (WPS) 4020 revision number 0.

OIW Fabrication Shop-Bay 3 forging (a111-2-arc strike):
QC Inspector Jose Salazar informed QA Inspector Brannon that hinge K pipe beam section A111-2 submerged arc welding (SAW) arc strike on the ring stiffener base metal of MK#b112 (HPS 485 W) had been removed by grinding. QC Inspector Jose Salazar also stated that he performed visual inspection (VT) and magnetic particle testing (MT) on the excavation and found no relevant indications. QA Inspector Brannon measured the depth of excavation to be approximately 5mm. QA also, performed visual inspection (VT) and magnetic particle testing (MT) on the excavation area and found no relevant indications. See Caltrans Magnetic Particle Test Report, TL-6028 dated February 13, 2008 for additional information.

OIW Fabrication Shop-Bay 3 forging (CWR-2244-002):
QC Inspector Jose Salazar informed QA Inspector Brannon that hinge K pipe beam section A111-3 (A508 Gr. 4N Class 2) relevant indication had been removed by grinding. The complete joint penetration (CJP) weld is identified as weld joint #W2-6. QC Inspector Jose Salazar also stated that he performed visual inspection (VT) and magnetic particle testing (MT) on the excavation and found no relevant indications. QA Inspector Brannon also, performed visual inspection (VT) and magnetic particle testing (MT) on the excavation area and found no relevant indications. See Caltrans Magnetic Particle Test Report, TL-6028 dated February 13, 2008 for additional information.

OIW Fabrication Shop-Bay 3 forging:
QC Inspector Jose Salazar informed QA Inspector Brannon that forging section a111-4 he observed numerous surface arc strikes at the beveled end on the inside of the forging section. QA Inspector Brannon went and performed visual inspection (VT) on the above mentioned forging sections and agreed with QC findings. QA Brannon questioned QC Salazar and OIW welder Craig Jacobson on how the arc strikes happen. QC Salazar and welder Mr. Jacobson stated to QA Brannon that they are not sure how the arc strikes happen. Mr. Jacobson stated to QC and QA that the arc strikes were not made from the SAW welding process. Both QC Salazar and Mr. Jacobson said they would investigate on how the arc strike occurred. Mr. Jacobson removed the arc strikes by method of grinding. After, Mr. Jacobson completed grinding. QC Inspector Jose Salazar performed visual inspection (VT) and magnetic particle testing (MT) and found no relevant indications. QA Inspector Brannon also, performed visual inspection (VT) and magnetic particle testing (MT) and found no relevant indications. See Caltrans Magnetic Particle Test Report, TL-6028 dated February 13, 2008 for additional information.

Material, Equipment, and Labor Tracking:
QA Inspector Brannon performed a verification of personnel at OIW. QA Inspector Brannon observed 1 Supervisor, 4 Quality Control and 5 production personnel on this date.

WELDING INSPECTION REPORT

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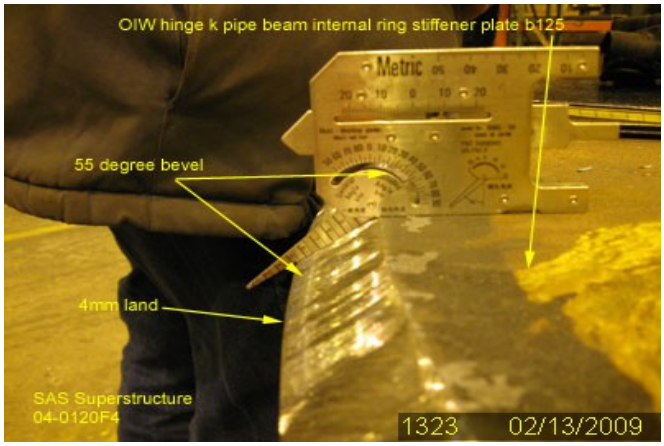
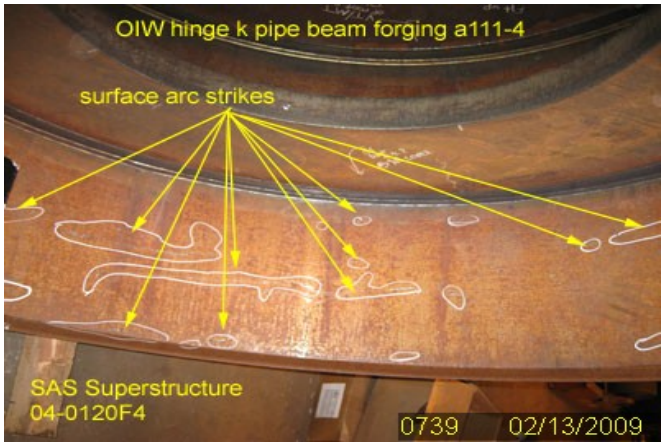
The following digital photograph below illustrates observation of the activities being performed.





Summary of Conversations:

As stated within this report.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

Inspected By:	Brannon,Sherri	Quality Assurance Inspector
Reviewed By:	Adame,Joe	QA Reviewer